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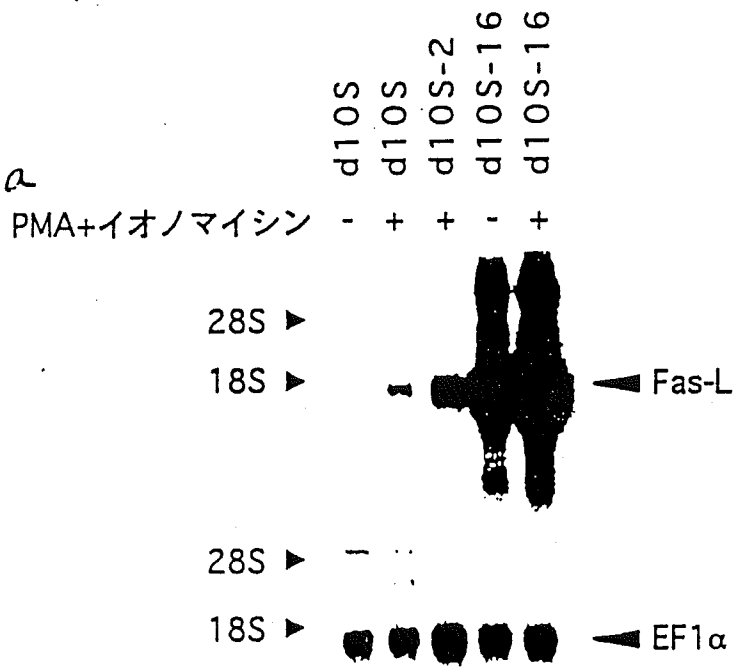
(54) Title : Fas LIGAND, PART THEREOF, AND DNA CODING FOR THE SAME

(54) 発明の名称 Fasリガンドおよびその一部、およびそれをコードするDNA

(57) Abstract

A Fas ligand useful in the medicinal field and a part thereof; a novel DNA coding for the same; an antibody; a recombinant DNA molecule containing the above DNA; a transformant; a method of purifying the novel protein; a process for producing the novel protein; a novel protein antibody; an oligonucleotide complementary to a Fas ligand gene; and a method of screening a substance associated with the Fas ligand.



a: PMA plus ionomycin

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Scope of Claims: Claim Articles

1. New polypeptides characterized by the amino acid sequence in the following formula 1 (arrangement number 1 of the sequence lists)
Formula 1

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2. New polypeptides characterized by the amino acid sequence in the following formula 2 (arrangement number 2 of the sequence lists))
Formula 2

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3. New polypeptides characterized by the amino acid sequence in the following formula 3 (arrangement number 3 of the sequence lists)
Formula 3

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4. New polypeptides characterized by the amino acid sequence in the following formula 4 (arrangement number 4 of the sequence lists)
Formula 4

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5. New polypeptides characterized by the amino acid sequence in the following formula 5 (arrangement number 5 of the sequence lists))
Formula 5

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6. New polypeptides characterized by the amino acid sequence in the following formula 6 (arrangement number 6 of the sequence lists))
Formula 6

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7. New polypeptides characterized by the amino acid sequence in the following formula 7 (arrangement number 7 of the sequence lists)
Formula 7

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8. New polypeptides characterized by the amino acid sequence in the following formula 8 (arrangement number 8 of the sequence lists)
Formula 8

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9. New polypeptides characterized by the amino acid sequence in the following formula 9 (arrangement number 9 of the sequence lists))
Formula 9

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10. New polypeptides characterized by the amino acid sequence in the following formula 10 (arrangement number 10 of the sequence lists)
Formula 10

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11. New polypeptides characterized by the amino acid sequence in the following formula 11 (arrangement number 11 of the sequence lists)
Formula 11

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12. New polypeptides characterized by the amino acid sequence in the following formula 12 (arrangement number 12 of the amino acid sequences)
Formula 12

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13. New polypeptides characterized by the following; contains the amino acid arrangements that are coded by the base sequences that hybridize with the complementary chains of the base arrangements that code any or some of the amino acid sequences chosen from prior formulas 1,5, and 9. (arrangement numbers 1, 5, and 9 of the sequence lists)

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14. New polypeptides with the following characteristic: contains the amino acid arrangements coded by the base sequences that hybridize with the complementary chains of the base sequences chosen from any or some of the arrangement numbers 13, 17, and 21 of the sequence lists.

15. Polypeptides recorded in either of claim articles 1 or 14 which bind with Fas antigen.

16. Polypeptides recorded in either claim articles 1 or 15 which have the activity that derives apoptosis towards cells which express Fas antigen.

17. New polypeptides recorded in either claim articles 1 or 16 that are rearranged polypeptides.

18. Polypeptides composed from a part of the amino acid sequences recorded in prior formula 4 (arrangement number 4 of the sequence lists)

19. Polypeptides composed from a part of the amino acid sequences recorded in prior formula 8 (arrangement number 8 of the sequence lists).

20. Polypeptides composed from a part of the amino acid sequences recorded in prior formula 12 (arrangement number 12 of the sequence lists).

21. Polypeptides produced by combining more than 2 kinds of polypeptides that are made from either all or a part of the amino acid sequences chosen from any or some of prior formulas 4, 8, and 12 (arrangement numbers 4, 8, and 12 of the sequence lists).

P. 227-8
22. Polypeptides recorded in either of claim articles 18 or 21 which bind with Fas antigen.

P. 228
23. New DNA which has the characteristic of containing the base sequences that code the new polypeptides recorded in either of claim articles 1 or 22.

24. New DNA which is recorded in claim article 23 in which the aforementioned DNA contains the base sequences which are recorded in the following formula 13 (arrangement number 13 of the sequence lists.)
Formula 13

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25. New DNA which is recorded in claim article 23 in which the aforementioned DNA contains the base sequences which are recorded in the following formula 14 (arrangement number 14 of the sequence lists.)
Formula 14

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26. New DNA which is recorded in claim article 23 in which the aforementioned DNA contains the base sequences which are recorded in the following formula 15 (arrangement number 15 of the sequence lists.)
Formula 15

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27. New DNA which is recorded in claim article 23 in which the aforementioned DNA contains the base sequences which are recorded in the following formula 16 (arrangement number 16 of the sequence lists.)
Formula 16

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28. New DNA which is recorded in claim article 23 in which the aforementioned DNA contains the base sequences which are recorded in the following formula 17 (arrangement number 17 of the sequence lists.)
Formula 17

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29. New DNA which is recorded in claim article 23 in which the aforementioned DNA contains the base sequences which are recorded in the following formula 18

(arrangement number 18 of the sequence lists.)
Formula 18

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30.New DNA which is recorded in claim article 23 in which the aforementioned DNA contains the base sequences which are recorded in the following formula 19 (arrangement number 19 of the sequence lists.)
Formula 19

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31. New DNA which is recorded in claim article 23 in which the aforementioned DNA contains the base sequences which are recorded in the following formula 20 (arrangement number 20 of the sequence lists.)
Formula 20

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32. New DNA which is recorded in claim article 23 in which the aforementioned DNA contains the base sequences which are recorded in the following formula 21 (arrangement number 21 of the sequence lists.)
Formula 21

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33. New DNA which is recorded in claim article 23 in which the aforementioned DNA contains the base sequences which are recorded in the following formula 22 (arrangement number 22 of the sequence lists.)
Formula 22

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34. New DNA which is recorded in claim article 23 in which the aforementioned DNA contains the base sequences which are recorded in the following formula 23 (arrangement number 23 of the sequence lists.)
Formula 23

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35. New DNA which is recorded in claim article 23 in which the aforementioned DNA contains the base sequences which are recorded in the following formula 24 (arrangement number 24 of the sequence lists.)
Formula 24

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36. New DNA which is recorded in claim article 23 in which the aforementioned DNA is a part of the base sequences recorded in the prior formula 16 (arrangement number 16 of the sequence lists.)

37. New DNA which is recorded in claim article 23 in which the aforementioned DNA is a part of the base sequences recorded in the prior formula 20 (arrangement

number 20 of the sequence lists.)

38. New DNA which is recorded in claim article 23 in which the aforementioned DNA is a part of the base sequences recorded in the prior formula 24 (arrangement number 24 of the sequence lists.)

39. New DNA which has the characteristic of hybridizing with DNA which contains the complementary base sequences of the base sequences recorded in any or some of prior formulas 13, 17, and 21 and coding Fas ligand (arrangement numbers 13, 17, and 21 of the sequence lists)

40. Recombinant DNA molecules which contain the new DNA recorded in either claim articles 23 or 39.

41. Transformant which has the characteristic of being transformed by the new DNA recorded in either of claim articles 23 or 39.

42. Transformant which has the characteristic of being transformed by the recombinant DNA molecules recorded in claim article 40.

43. Transformant recorded in either of claim articles 41 or 42 in which transformat transformed at least one of the hosts chosen from the following a) or c)

a) E. coli
b) yeast
c) mammalian cells

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44. Production methods of the new polypeptides recorded in either of claim articles 1 or 22 which have the characteristic of culturing the transformant recorded in either of claim articles 41 or 43, collecting and refining new polypeptides recorded in either of claim articles 1 or 22 from the culture mixtures.

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45. Refining methods for the new polypeptides recorded in either of claim articles 1 or 22 which is a refining method for the aforementioned new polypeptides from sample which contains new polypeptides recorded in either of claim articles 1 or 22, and have the characteristic of at least performing one or more of the refining processes chosen from the following:

(1) Affinity chromatography using Fas antigen;
(2) Affinity chromatography using antibody which recognizes new polypeptides recorded in either of claim articles 1 or 22.

46. New antibody which has the characteristic of recognizing new polypeptides recorded in either claim articles 1 or 2.

47. New antibody recorded in claim article 46 in which the aforementioned antibody

is monoclonal antibody.

48. New antibody recorded in claim article 46 in which the aforementioned antibody is polyclonal antibody.

49. New antibodies recorded in either claim articles 46 or 48 which have the effect of suppressing apoptosis of the cells which express Fas antigen.

50. Oligonucleotides or oligonucleotide derivatives which have the characteristic of containing complementary base sequences to part of the mRNA for part of the Fas ligand gene or Fas ligand.

51. The oligonucleotides or oligonucleotide derivatives recorded in claim article 50 which control the expression of Fas ligand.

P. 251-2
52. The oligonucleotides or oligonucleotide derivatives recorded in claim articles 50 or 51 which suppress the expression of Fas ligand.

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53. Oligonucleotides or oligonucleotide derivatives recorded in either claim articles 50 or 52 in which oligonucleotides or oligonucleotide derivatives are the oligonucleotides or their derivatives which contain part of the complementary base sequences to the base sequences recorded in either of arrangement numbers 13 or 28 of the sequence lists.

54. Screening methods for the substances related to Fas ligand or the substances related to Fas antigen which have the characteristic of utilizing new polypeptides recorded in either of claim articles 1 or 22, or transformant which expresses the new polypeptides.

55. Screening methods in claim article 54 which have the characteristic of utilizing new polypeptides recorded in either of claim articles 1or 22, or transformant and Fas antigen which expresses the new polypeptides, or cells which express Fas antigen.

56. Screening methods recorded in claim articles 54 or 55 which screen at least 1 substance chosen from the group made from substances which combine with Fas ligand, substances which control the expression of Fas ligand, substances which control the expression of Fas antigen, and substances which control the operation of Fas ligand target cells.

57. Screening methods of either of claim articles 54 or 56 which contain the process of being selected from any of the following (1) through (3).

(1) a. Culture the cells which express Fas antigen with one of polypeptides recorded in either of claim articles 1 or 22, transformants which

express the polypeptides, or groups made from the growth medium of the transformants.

b. Add the experimental substance or the sample containing the experimental substance to a.

c. Evaluate for at least one of the following: life or death of the cells which express Fas antigen; morphological changes; or biochemical changes.

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(2) a. Incubate the experimental substance or the sample containing the experimental substance with any or some of the following: new polypeptides recorded in either of claim articles 1 or 22; transformants which express the new polypeptides; or groups made from the growth medium of the transformant.

b. Culture by adding the cells which express Fas antigen to a.

c. Evaluate for at least one of the following: life or death of the cells which express Fas antigen; morphological changes; or biochemical changes.

(3) a. Incubate the experimental substance or the sample containing the experimental substance with the cells which express Fas antigen.

b. Culture by adding any or some of the following to a: new polypeptides recorded in either of prior formulas 1 or 22; transformant which expresses the new polypeptides; or groups made from the growth medium of the transformant.

c. Evaluate for at least one of the following: life or death of the cells which express Fas antigen; morphological changes; or biochemical changes.